

Appl. No. 09/463,001
Amdt. dated May 18, 2004
Reply to Office action of December 18, 2003

REMARKS/ARGUMENTS

Status of Claims

Claims 10-12, 14-19, 22-27, 35-36, and 41-55 are presently pending in this application.

Claim rejections - 35 U.S.C. § 103

All the claims have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kirk et al., U.S. Patent 5,654,063 (Kirk) in view of Fritze et al., U.S. Patent 4,372,997 (Fritze).

Kirk relates to a patch for patching a hole in a fire-resistant wall. The patch includes a standard fiberglass tape or scrim 18 with intumescent material 14 completely encasing it, and an adhesive 16 applied to at least one side of the coated tape. Where the patch is to be placed over a discontinuity, a base member 20, in the form of a plastic sheet or the like, may be used as an alternative to, or in addition to, the scrim in order to provide additional structure. "The base member 20 is an element separate and distinct from any structural items(s) embedded with the barrier layer 14." Col. 5, lines 46-48. If desired, an overlay 24 may be connected to the outer face of the barrier layer 14. "A first purpose of the overlay 24 may be to act as a moisture barrier." Col. 7, lines 5-6. The overlay may for example be made of plastic sheet or film, a metal foil, rubber, or a laminate of these materials.

Appl. No. 09/463,001
Amdt. dated May 18, 2004
Reply to Office action of December 18, 2003

As discussed below, this patent fails to show or suggest the invention set out in the claims of the present application.

Fritze is directed to a sheet material that provides a barrier to heat and flame. The sheet material includes two fibrous webs adhered together with asphalt which is filled with inorganic particles, intumescable granules, and a catalyst for catalyzing charring of the asphalt. Films of polypropylene or the like "may be laminated to the sheet material to provide a moisture barrier." (col 4, lines 5-8) This patent likewise fails to suggest the invention set out in the present claims.

Even assuming, as the Examiner suggests, that it would have been obvious to those skilled in the art "to have used Fritze's polypropylene film in the adhesive cover of Kirk et al., motivated by the desire to create an adhesive having a moisture barrier," the resulting structure would simply be the Kirk structure in which the overlay 24 is made of polypropylene. It would not be the structure called for in the claims, nor would the method of making it be the method of making the structure as called for in the claims.

Claim 10 as amended calls for a "composite material comprising at least one layer containing a thermoplastic, the layer having embedded therein a fabric, the fabric being coated with an active thermal protective material selected from the group consisting of subliming materials and intumescent materials, the active thermal protective material leaving openings in the weave of the fabric, the thermoplastic material extending into the openings and forming a physical lock

Appl. No. 09/463,001
Amdt. dated May 18, 2004
Reply to Office action of December 18, 2003

with the coated fabric." Nothing in either of the cited references, taken alone or separately, suggests creating this physical lock between the thermoplastic material of a composite material and a fabric coated with an active thermal protective material.

Claims 11-12, 16-19, and 22-24 are dependent on claim 10 and should be allowable with it. They also add features which, in the claimed combination, are neither shown nor suggested by the prior art.

Claim 14 as amended calls for a "container formed essentially of a composite material comprising at least one layer containing a thermoplastic, the layer having embedded therein a fabric, the fabric being coated with an active thermal protective material selected from the group consisting of subliming materials and intumescent materials. The Kirk reference is directed to a patch. Neither this reference nor its combination with Fritze suggests a container formed essentially of the construction set out in claim 14.

Claim 15 is dependent on claim 14 and sets out that the container is a trunk base or fuel tank. These features, in the claimed combination, are neither shown nor suggested by the prior art.

Claim 25 calls for a "method of forming a composite structure comprising a step of coating a fabric with an active thermal protective material selected from the group consisting of subliming and intumescent materials, and thereafter a step of softening a resin component of a substrate and embedding the coated fabric in the softened resin." Kirk does not disclose a step of softening a resin

Appl. No. 09/463,001
Amdt. dated May 18, 2004
Reply to Office action of December 18, 2003

component of a substrate and embedding the coated fabric in the softened resin. Nothing in either reference, taken alone or together, suggests the method set out in this claim.

Claims 26 and 27 are dependent on claim 25 and are believed to be allowable with it. They also add features which, in the claimed combination, are neither shown nor suggested by the prior art.

Claim 35 as amended calls for a "molded structure comprising an organic resin having embedded therein a fabric, the fabric being precoated with an active thermal protective material selected from the group consisting of subliming and intumescent materials." Nothing in Kirk suggests such a molded structure, and the Fritze reference does not suggest modifying Kirk to form such a structure.

Claim 36 is dependent on claim 35 and is believed to be allowable with it. It also adds a feature which, in the claimed combination, is neither shown nor suggested by the prior art.

Claim 41 is directed to a "method of forming a composite structure comprising a step of treating a fabric with an active thermal protective material selected from the group consisting of subliming and intumescent materials, a step of placing the treated fabric in a mold, and a step of forming a substrate into a shape in the mold containing the treated fabric." Kirk discloses nothing about such a method, and in particular does not disclose anything about a molding step, and the combination of Kirk and Fritze does not in any way suggest the claimed method.

Appl. No. 09/463,001
Amdt. dated May 18, 2004
Reply to Office action of December 18, 2003

Claims 42-48 are dependent on claim 41 and are believed to be allowable with it. They also add features which, in the claimed combination, are neither shown nor suggested by the prior art.

Claim 49 calls for a "composite structure comprising a substrate, the substrate being formed at least in part of a thermoplastic material, and a thermal protective structure adhered to the substrate, the thermal protective structure comprising a fabric coated with an active thermal protective material, the thermal protective material being selected from the group consisting of subliming and intumescent materials, the substrate adhering chemically and mechanically to the pretreated fabric. The Kirk reference teaches merely the use of an adhesive, but does not teach or suggest adhering a thermal protective structure both chemically and mechanically to a substrate.

Claims 50 and 51 are dependent on claim 49 and are believed to be allowable with it. They also add features which, in the claimed combination, are neither shown nor suggested by the prior art.

Claim 52 is directed to a "composite structure comprising a substrate, the substrate being formed at least in part of a polyolefin, and a mesh fabric treated with an active thermal protective material, the thermal protective material being selected from the group consisting of subliming and intumescent materials, the treated mesh fabric having from 0.5 to 30 openings per square centimeter, the substrate adhering chemically and mechanically to the pretreated mesh fabric. As with claim 49, nothing in the references taken separately or in combination

Appl. No. 09/463,001
Amdt. dated May 18, 2004
Reply to Office action of December 18, 2003

suggests this construction.

Claim 53 is dependent on claim 52 and is believed to be allowable with it. It also adds a feature which, in the claimed combination, is neither shown nor suggested by the prior art.

New claim 54 is directed to a "method of forming a composite structure comprising a step of coating a fabric with an active thermal protective material selected from the group consisting of subliming and intumescent materials, the coating step leaving openings in the coated fabric, and thereafter a step of causing a resin component of the composite structure to pass through the openings and form a mechanical lock with the coated fabric." Nothing in the Kirk reference discloses this method, and nothing in the combined references suggests it.

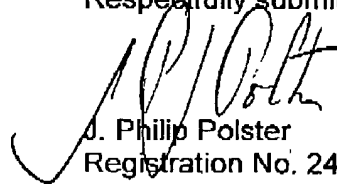
Claim 55 is dependent on claim 54 and is believed to be allowable with it. It also adds a feature which, in the claimed combination, is neither shown nor suggested by the prior art.

It is believed that the claims as now written clearly define an invention which is neither anticipated nor made obvious by the prior art. It is therefore requested that the case be passed to issue.

Appl. No. 09/463,001
Amdt. dated May 18, 2004
Reply to Office action of December 18, 2003

Should the Examiner have any questions or suggestions, she is urged to
call applicants' undersigned attorney, J. Philip Polster, at 314-872-8118.

Respectfully submitted,



J. Philip Polster
Registration No. 24,739
POLSTER, LIEDER, WOODRUFF
& LUCCHESI, L.C.
763 South New Ballas Road
St. Louis, MO 63141
(314) 872-8118
(314) 991-2178 (fax)